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INFORMATION REPORT

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COUNTRY East Germany

REPORT

SUBJECT East German Electric Components

DATE DISTR. 16 MAR 196

NO. PAGES 1

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REFERENCES

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DATE OF INFO.

PLACE & DATE ACQ.

RCE GRADINGS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

two technical reports giving descriptions of East German electronic components

Terminal penthode
Adjustable high-frequency penthode
Triode with medium mutual conductance
Triode plus diode (multiple tube)
Micro high-frequency penthode)
Micro high-frequency penthode) for field
Micro low-frequency penthode) intensity measuring
Micro low-frequency penthode) instrument

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Gold wire diode
High-capacity rectifier

Transistor T 1) for radiation intensity
Transistor T 2) measuring instrument
Transistor T 3)

STATE	X	ARMY	X	NAVY	X	AIR	X	NSA	X	OCR		DIA	X	

(Note: Washington distribution indicated by "X"; Field distribution by "#".)

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East Germany

SISC No 652.813 4M/C

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Economic - Production of electronic tubes

Time: September-October 1961

Attachments: (Original type and explanations)

1. Terminal penthode.
2. Adjustable high frequency penthode
3. Triode with medium mutual conductance
4. Triode plus Diode (multiple tube)
5. Micro high frequency penthode
6. Micro high frequency penthode
7. Micro low frequency penthode
8. Micro low frequency penthode

} for field intensity measuring instrument

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1. Development of a Field Intensity Measuring Instrument

In September 1961 the development of a field intensity meter for the Soviet Union was brought to a close in the VEB radio factory Berlin-Koepenik. The field intensity measuring instrument is a monitor which, as a portable attachment, oversees the signal intensity, field intensity, and the function of the different parts of directional radio transmission installations.

The VEB factory for television electronics (formerly the factory for electronic tubes, OSW) Berlin-Oberschoeneweide produced and delivered 4 types of tubes (see attachments 5 through 8) for the field intensity measuring instrument which used very little power.

The field intensity measuring instrument is operated by means of a battery which provides the filament voltage and provides the anode voltage over a transistorized direct current voltage transformer. The battery is either recharged or changed every 8 days. (However, the directional radio transmission instruments themselves are attached to the appropriate control instruments from mobile or stationary aggregates.)

2. VEB Factory for Television Electronics Berlin

The VEB factory for electronic tubes (OSW) Berlin-Oberschoeneweide is now called: "VEB factory for television electronics Berlin-Oberschoeneweide (WfF)."

3. Production Program for Electronic Tubes

In September/October 1961, the new production program for electronic tubes was initiated. According to the new program, tube

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production is divided among the following enterprises:

a) VEB RFT EfF (Factory for television electronics)

Berlin-Oberschoeneweide, Ostendstrasse 1-5

Maximum frequency tubes

Traveling wave tubes

Magnetrons

Thyratrons

Rod-shaped tubes

Miniature tubes

Subminiature tubes

Longlife tubes

Cold cathode tubes

Television picture tubes

Transmitter tubes

Cathode-ray-oscillograph tubes

Moreover, in the capacity of directing development enterprise: the development and pre-series production of special tubes, especially for export to Soviet Union. Imitation and further development of tubes of western foreign countries.

The series production of the tubes produced in preseries production are partially given to other tube factories after the development has been completed.

b) VEB RFT radio factory erfurt, Rudolfstrasse 47

Cathode ray-oscillograph tubes

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Miniature tubes

Subminiature tubes

Sender tubes of small and medium capacity

Pilot and visual indicator tubes

Counter tubes

c) VEB RFT tube factory Muehlhausen (Thueringen), Eisenacherstr. 40

Rectifier tubes of all types

Radio tubes A-series (Voltage = 4 volts)

Radio tubes E-series (Voltage = 6.3 volts)

Radio tubes C-Series (Voltage = 20 to 100 volts)

Current = 0.2 amperes

Current calibrated Octal tubes (Current = 0.3 amperes)

Radio tubes of the harmonic series (formerly red series of the Valvo Firm)

d) VEB RFT tube factory in Neuhaus Am Rennweg, Thomas Mann Strasse 2

Special radio tubes

Special tubes of the U-series

Special tubes of the counter series

Octal tubes, USA type

Special subminiature tubes

Neon visual indicator tubes

Pilot bulbs

Geiger counter tubes

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Attachment 1

Explanation to Original Model

1. Number of the models: 2

2. Type

Name:	Terminal penthode
Type, Group Number:	Still no designation
Intended use:	?

3. Development

Director:	VEB radio factory Koepenick
Termination:	Presumably in the third quarter of 1961
Enterprise:	VEB factory for electronic tubes (OSW) Berlin-Obershcoeneweide

4. Production

Ordered by:	Soviet Union
Receivers signature:	?
Beginning :	September 1961
Enterprise:	VEB factory for electronic tubes (OSW) Berlin-Oberschoeneweide
Amount of production:	Number of units still low at the present time
Production date of the model:	September/October 1961
Production type:	At the present time still in laboratory production

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5. Technical Data:

U_f = 1.5 volts

J_f = 0.022 Amperes

U_a = 50 volts

U_g2 = 50 volts

U_g1 = -5 volts

U_g3 = 0 volts

S = 0.7 miliamperes per volt

6. Western equivalent type: A further developed copy of the American type 3A4

7. Remarks: None

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Attachment 2

Explanation to Original Model

1.	Number of the model:	2
2.	Type	
	Name:	Adjustable high frequency penthode
	Type, group number:	Laboratory designation DF 25 Army
	Intended use:	In military equipment
3.	Development	
	Director:	VEB radio factory Koepenick
	Termination:	Third quarter of 1961
	Enterprise:	VEB factory for electronic tubes (OSW) Berlin-Obershcoeneweide
4.	Production	
	Ordered by:	Soviet Union
	Receivers signature:	?
	Beginning:	September 1961
	Enterprise:	VEB factory for electronic tubes (OSW) Berlin-Oberschoeneweide
	Amount of production:	Number of units still small at the present time
	Production date of the model:	October 1961
	Production type:	At the present time still in laboratory production

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Technical Data

U_f = 1.5 volts

J_f = 0.030 Amperes

U_a = 100 volts

U_g2 = 50 volts

U_g1 = -4.2 volts

U_g3 = 0 volts

N = 0.8 Watts

S = 2.2 miliamperes per volt

6. Western equivalent type: Further developments of the DF 25

7. Remarks: All construction data of the DF 25 tube of the former German Army is completely in the possession of the VEB factory for electronic tubes (OSW) Berlin -Obershcoeneweide. According to this data, the tube will be copied in the third quarter of 1961 because there are plans to produce the tube in large amounts as was ordered by the Soviet Union. The enterprise which is to undertake this production has not yet been determined. The tube has been copied in two designs and designated as 2A and 2B. Even though the two designs differ in the basic materials used and the type of the anode plate, they have the same technical data and the same function.

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Attachment 3

Explanation to Original Model

1.	Number of the model:	2
2.	Type	
	Name:	Triode with medium mutual conductance
	Type, group number:	Still no designation
	Intended use:	Solely as a low frequency driver stage
3.	Development	
	Director:	VEB radio factory Koepenick
	Termination:	Middle of the third quarter 1961
	Enterprise:	VEB factory for electronic tubes (OSW) Berlin-Obershcoeneweide
4.	Production	
	Ordered by:	Soviet Union
	Receivers signature:	?
	Beginning:	September 1961
	Enterprise:	VEB factory for electronic tubes (OSW) Berlin-Oberschoeneweide
	Amount of production:	Low number of units
	Production date of the model:	October 1961
	Production type:	At the present time still in laboratory production

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5. Technical Data

U_f = 1.5 volts

J_f = 0.030 amperes

U_a = 100 volts

U_g1 = -4.2 volts

U_g3 = 0 volts

S = 1.0 miliamperes per volt

6. Western equivalent type: No equivalent type

7. Remarks: None

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Attachment 4

Explanation to Original Model

1.	Number of the model:	2
2.	Type	
	Name:	Triode plus Diode (multiple tube)
	Type, group number:	Still no designation
	Intended use:	?
3.	Development	
	Director:	VEB radio factory Koepenick
	Termination:	Middle of the third quarter of 1961
	Enterprise:	VEB factory for electronic tubes (OSW) Berlin-Obershcoeneweide
4.	Production	
	Ordered by:	Soviet Union
	Receivers signature:	?
	Begin:	September 1961
	Enterprise:	VEB factory for electronic tubes (OSW) Berlin-Obershcoeneweide
	Amount of production:	Low number of units
	Production date of the model:	October 1961
	Production type	laboratory production

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5. Technical Data:

U_f = 1.5 volts

J_f = 0.060 amperes

U_a = 100 volts

U_{g1} = 0 volts

U_{g3} = 0 volts

S = 1.0 miliamperes per volt

6. Western Equivalent Type: no equivalent Type

7. Remarks: The triode part of the tube works as a discriminator and the diode part works as a forward control. The tube is being produced in two designs: enclosed is the first preliminary design without the perforated radiation protection plate which is designated as 4 b and the second final design which contains a perforated radiation plate and is designated 4 a. Both designs have the same technical data and the same function.

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Attachment 5

Explanation to Original Model

1. Number of the Model: 2

2. TYPE

Name:	Micro-High Frequency Penthode
Type, Group Number:	still no designation
Intended use:	for the field intensity meter

3. DEVELOPMENT

Director:	VEB Radio Factory KOPENICK
Determination:	probably in August/September 1961
Enterprise:	VEB Factory for Electron Tubes (OSW) BERLIN-OBERSCHONEWEIDE

4. PRODUCTION

Ordered by:	Soviet Union
Receiver's signature:	-?-
Begin:	September 1961
Enterprise:	VEB Factory for Electronic Tubes (OSW) BERLIN-OBERSCHONEWEIDE
Amount of Production:	still a low number of units
Production Date of the Model:	October 1961
Production Type:	Laboratory production

5. Technical Data:

U_f = 0.650 Volts

J_f = 0.012 Amperes

U_a = 30 Volts

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U_g2 = 30 Volts

S = 0.15 miliamperes per volt

6. Western Equivalent Type: -?-

7. Remarks: see accompaning letter

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Attachment 6

Explanation to Original Model

1.	Number of the Model:	2
2.	TYPE	
	Name:	Micro-High Frequency Penthode
	Type, Group Number:	still no designation
	Intended use:	for the field intensity meter
3.	DEVELOPMENT	
	Director:	VEB Radio Factory KOPENICK
	Determination:	August/September 1961
	Enterprise:	VEB Factory for Electronic Tubes (OSW) BERLIN-OBERSCHONEWEIDE
4.	PRODUCTION	
	Ordered by:	Soviet Union
	Receiver's signature:	-?-
	Begin:	September 1961
	Enterprise:	VEB Factory for Electronic Tubes (OSW) BERLIN-OBERSCHONEWEIDE
	Amount of Production:	low number of units
	Production Date of the Model:	October 1961
	Production Type:	Laboratory production
5.	Technical Data:	U_f = 0.700 Volts
		J_f = 0.015 Amperes
		U_a = 20 Volts

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U_g2	=	20 Volts
S	=	0.18 miliamperes per volt

6. Western Equivalent Type: -?-

7. Remarks: see accompaning letter

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Attachment 7

Explanation to Original Model

1.	Number of the Model:	2
2.	TYPE	
	Name:	Micro-Low Frequency Penthode
	Type, Group Number:	still no designation
	Intended use:	for the field intensity meter
3.	DEVELOPMENT	
	Director:	VEB Radio Factory KOPENICK
	Determination:	August/September 1961
	Enterprise:	VEB Factory for Electronic Tubes (OSW) BERLIN-OBERSCHONEWEIDE
4.	PRODUCTION	
	Ordered by:	Soviet Union
	Receiver's signature:	-?-
	Begin:	September 1961
	Enterprise:	VEB Factory for Electronic Tubes (OSW) BERLIN-OBERSCHONEWEIDE
	Amount of Production:	number of units still low at the present time
	Production Date of the Model:	October 1961
	Production Type:	still Laboratory production
5.	Technical Data:	U_f = 0.650 Volts
		J_f = 0.012 Amperes
		U_a = 30 Volts

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U_g2 = 30 Volts

U_g1 = -0.8 Volts

S = 0.26 miliamperes per volt

6. Western Equivalent Type: -?-

7. Remarks: see accompaning letter

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Attachment 8

Explanation to Original Model

1.	Number of the Model:	2
2.	TYPE	
	Name:	Micro-Low Frequency Penthode
	Type, Group Number:	still no designation
	Intended use:	for the field intensity meter
3.	DEVELOPMENT	
	Director:	VEB Radio Factory KOPENICK
	Determination:	August/September 1961
	Enterprise:	VEB Factory for Electronic Tubes (OSW) BERLIN-OBERSCHONEWEIDE
4.	PRODUCTION	
	Ordered by:	Soviet Union
	Receiver's signature:	-?-
	Begin:	September 1961
	Enterprise:	VEB Factory for Electronic Tubes (OSW) BERLIN-OBERSCHONEWEIDE
	Amount of Production:	number of units still low at the present time
	Production Date of the Model:	October 1961
	Production Type:	at the present time still in Laboratory production
5.	Technical Data:	U_f = 0.700 Volts
		J_f = 0.015 Amperes

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U_a	=	20 Volts
U_g2	=	20 Volts
U_g1	=	-0.6 Volts
S	=	0.20 miliamperes per volt

6. Western Equivalent Type: -?-

7. Remarks: see accompaning letter

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EAST GERMANY

SISC no. 652.813 4M/C

Economics - Components of Communications Technology

Time: September/October 1961

Attachments: (Original Model and Explanations)

1. Gold wire diode
2. High capacity rectifier

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Attachment 1

Explanation to Original Model

1.	Number of the Model:	2
2.	TYPE	
	Name:	Gold Wire Diode
	Type, Group Number:	still no designation
	Intended use:	in radio directional equipment
3.	DEVELOPMENT	
	Director:	-?-
	Determination:	presumably in the beginning of the third quarter of 1961
	Enterprise:	Institute for Semi-Conductor Technology TELTOW
4.	PRODUCTION	
	Ordered by:	solely by the Soviet Union
	Receiver's signature:	-?-
	Begin:	end of the third quarter of 1961
	Enterprise:	VEB Factory for Components of Communications Technology C. v. Ossietzky TELTOW
	Amount of Production:	low number of units
	Production Date of the Model:	October 1961
	Production Type:	Laboratory production
5.	Technical Data:	4 - 7 gigacycles
6.	Western Equivalent Type:	-?-
7.	Remarks: None.	

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Attachment 2

Explanation to Original Model

1.	Number of the Model:	1
2.	TYPE	
	Name:	High Capacity Rectifier
	Type, Group Number:	still no designation
	Intended use:	in mobile and stationary radar installations
3.	DEVELOPMENT	
	Director:	-?-
	Determination:	presumably in September 1961
	Enterprise:	Institute for Semi-Conductor Technology TELTOW
4.	PRODUCTION	
	Ordered by:	-?-
	Receiver's signature:	-?-
	Begin:	end of September 1961
	Enterprise:	Institute for Semi-Conductor Technology TELTOW
	Amount of Production:	low number of units
	Production Date of the Model:	October 1961
	Production Type:	Laboratory production
5.	Technical Data:	The rectifier is laid out for 200 volts of alternating current with a [redacted] load of 10 amperes, and consequently 2,000 watts. Temperature area: -40° + 90° Centigrade

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6. Western Equivalent Type: -?-

7. Remarks: The rectifier is being produced in the diffusion process on a Silizium base. Because of its cascade connection construction it is suitable for very high currents. It can withstand current impulses up to 100 Amperes. An additional dissipation of heat of Al 1.5 x 120 x 120 millimeters is required. However, the rectifier is sensitive to unusually high voltage, for example to lightning bolts, so that the possible series connection of a protective resistance is advisable.

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EAST GERMANY

SISC no. 652.813 4M/C

Economic - Development of a Radiation Measuring Instrument for the NVA.

Time: January - October 1961

Attachments: (Original Model and Explanations)

1. Transitor T 1)
2. Transitor T 2) for radiation intensity
3. Transitor T 3) measuring instrument

(Photocopy)

4. Schematic diagram of the radiation intensity measuring instrument.

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Development and Technical Characteristics:

In January 1961, the new microwave measuring instrument MSG 1.5 V was developed in the VEB RFT Radio Factory BERLIN - KOPENIK by order of the Ministry for National Defense of East Germany. (compare to E 320/61). After a final six month test by units of the NVA [National Volksarmee - National People's Army], all models of this instrument were recalled and the following deficiencies were objected to:

1. The acoustical observation of the measured radiation intensity through head phones is not enough because it can be impaired by interference in the vicinity. An additional optical observation capability of the measured radiation intensity was requested.

2. The operating sensitivity of the instrument is not enough and has to be improved.

Following this the reconstruction of the instrument was undertaken in the VEB Radio Factory KOPENIK with the highest priority. The reconstruction under the designation "radiation intensity measuring instrument" was finished in October 1961 and can be seen from the schematic diagram (see attachment 4).

In addition to the acoustical observation, the new construction makes possible the observation of the radiation intensity on a built-in µA measuring instrument which has indirect lighting for use in the dark. By means of a switch the instrument can be either switched to acoustical or optical observation. The T2 and T3 transitors provide a dual level amplification. For the purpose of

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increasing the sensitivity, the Geiger - Mueller counter tube (Philips - Valvo 18503) which was used in the first design has been replaced in the new construction by the Valvo 1851 counter tube.

A total of three transitors are used in the new construction (see attachments 1 through 3).

Intended use:

It is intended that not only the NVA but also the forces of the Soviet Union and forces of other East Bloc countries are to be standardly equipped with the radiation intensity measuring instrument.

Material procurement:

Because the Geiger counter tubes for the radiation intensity measuring instrument cannot be produced in East Germany with the desired sensitivity, they are being delivered by the Valvo Firm (West Germany) to Sweden and from there are being imported into East Germany.

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Attachment 1

Explanation to Original Model

1. Number of the Model: 2

2. TYPE

Name:	Transitor (T 1)
Type, Group Number:	still no designation
Intended use:	in radiation intensity measuring instrument

3. DEVELOPMENT

Director:	VEB Radio Factory KOPENICK
Determination:	September 1961
Enterprise:	Institute for Semi-Conductor Technology TELTOW

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4. Production

Ordered by:	Soviet Union, other East Bloc countries, and the NVA
Receiver signature:	?
Begin:	October 1961
Enterprise:	For the time being, still the Institute for Semi-conductor Technology at Teltow
Amount of production:	Number of units still low at the present time
Production date of the model:	October 1961
Production type:	At present still in laboratory production

5. Technical Data:

$-U_{CE}$ = 15 volts

$-u_{CEM}$ = 15 volts

$-U_{CB}$ = 15 volts

$-u_{CBM}$ = 15 volts

$-U_{EB}$ = 8 volts

$-u_{EBM}$ = 12 volts

$-J_C$ = 5 miliamperes

$-i_{CM}$ = 10 miliamperes

T_i = 90° Centigrades

6. Western equivalent type: ?

7. Remarks: The T 1 transistor directly serves the power supply, i.e. through the battery aggregate as a direct current voltage transformer for the supply for the geiger counter tube. It is comparable with the usual cooling device (cooling ring).

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Attachment 2

Explanation to Original Model

1.	Number of the model:	2
2.	Type	
	Name:	Transistor (T 2)
	Type, group number:	Still no designation
	Intended use:	In radiation intensity measuring instrument
3.	Development	
	Director:	VEB radio factory Koepenick
	Termination:	September 1961
	Enterprise:	Institute for Semi-conductor Technology Teltow
4.	Production	
	Ordered by:	Soviet Union, other East Bloc countries, and the NVA
	Receivers signature:	?
	Begin:	October 1961
	Enterprise:	For the time being, still the Institute for Semi-conductor Technology Teltow
	Production date of model:	October 1961
	Production type:	At the present time still in laboratory production

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5. **Technical data:**

$-U_{CE}$	= 12 volts	Threshold Data
$-u_{CEM}$	= 12 volts	
$-U_{CB}$	= 12 volts	
$-u_{CBM}$	= 12 volts	
$-U_{EB}$	= 6 volts	
$-u_{EBM}$	= 8 volts	
$-J_C$	= 4 miliamperes	
$-i_{CM}$	= 8 miliamperes	
T_i	= 90° centigrade	

6. **Western equivalent type:** ?

7. **Remarks:** The T2 transistor operates with purely high frequencies so that there is no need for an additional cooling device.

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Attachment 3

Explanation to Original Model

1.	Number of the model:	2
2.	Type	
	Name:	Transistor (T 3)
	Type, group number:	Still no designation
	Intended use:	In radiation intensity measuring instrument.
3.	Development	
	Director:	VEB radio factory Koepenick
	Termination:	September 1961
	Enterprise:	Institute for Semi-conductor Technology Teltow
4.	Production	
	Ordered by:	Soviet Union, other East Bloc countries, and the NVA
	Receivers signature:	?
	Begin:	October 1961
	Enterprise:	At the present time, still the Institute for Semi-conductor Technology Teltow
	Amount of production:	At the present time the number of units is still low
	Production date of the model:	October 1961
	Production type:	At the present time still in laboratory production

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5. **Technical data**

$-U_{CE}$	= 30 volts		
$-u_{CEM}$	= 32 volts		
$-U_{CB}$	= 30 volts		
$-u_{CBM}$	= 32 volts	Threshold	
$-U_{EB}$	= 10 volts	Data	
$-u_{EBM}$	= 12 volts		
$-J_C$	= 50 miliamperes		
$-i_{CM}$	= 100 miliamperes		
T_i	= 75° centigrade		

6. **Western equivalent type:** ?

7. **Remarks:** The T 3 Transistor works with purely high frequency so that there is no need for an additional cooling device.

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